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Swayamchalit Utkrantik Kendrak-Micro (SUK-M): India's First Molten Salt Micro-Reactor Revolutionizing Energy and Sustainability

The Indian Youth Nuclear Society presents Swayamchalit Utkrantik Kendrak-Micro (SUK-M), India's pioneering micro-reactor leveraging molten salt technology. With a power capacity of 10 MW (electric) or 30 MW (thermal), SUK-M is poised to redefine India's energy landscape with its innovative design and inherent safety features. SUK-M embodies a paradigm shift in nuclear reactor safety, engineered to eliminate radiological risks and severe accidents by design, ensuring its suitability for deployment in public domains. Its unique transportability by rail and road facilitates accessibility to diverse locations, while its ready-to-plug configuration minimizes on-site construction requirements, expediting deployment timelines. Key to SUK-M's operational efficiency is its extended refueling life of 10 years, reducing downtime and enhancing productivity. Factory-assembled components enable rapid and large-scale deployment, meeting the urgent energy demands of various sectors. Furthermore, SUK-M offers the option for thorium utilization, enhancing safety, and minimizing spent fuel generation, aligning with India39;s strategic energy objectives. Its elevated operating temperatures make it ideal for applications such as captive usage, green hydrogen production, and water desalination, fostering sustainable socio-economic development. In addition, SUK-M's development for seismic zone 5 underscores its adaptability, facilitating deployment in all geographies. This pioneering micro-reactor holds immense promise in addressing the nation's energy needs while advancing environmental stewardship and economic prosperity.

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Confirm that the work is original and has not been published anywhere else

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